## Standards for the unit

| 12 hours |  | SUPPORTING STANDARDS |  | CORE STANDARDS Grade 12 standards |  | EXTENSION STANDARDS |
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| 2 hours  Responding to environmental stimuli  2 hours  Homeostasis  3 hours  Thermoregulation  3 hours  Oestrous cycle regulation  2 hours  Nervous and hormonal control systems | 9.10.5 | Know the structure and function of the human eye and ear. | **12F.9.1** | **Explain the importance to the survival of organisms of being able to respond to environmental stimuli.** |  |  |
| 9.10.1 | Explain the importance of maintaining a constant internal environment. | **12F.9.2** | **Explain the importance of homeostasis in mammals and describe the process in terms of receptors, effectors and negative feedback.** |  |  |
| 9.10.6 | Know how the body controls temperature and water balance. | 12F.9.3 | Describe thermoregulation in humans and the roles of TRH and TSH. | 12A.9.4 | Explain the role of thermoreceptors in the hypothalamus in thermoregulation and describe some physiological and behavioural responses of mammals to hot and cold conditions. |
|  |  |  | 12A.9.5 | Describe the symptoms of heatstroke and explain why it occurs and how it can be avoided. |
|  |  | 12F.9.4 | Describe the mammalian oestrous cycle and the roles of oestrogen, progesterone, LH and FSH. |  |  |
| 9.10.2 | Explain the ways in which hormonal control occurs and the effects of insulin. | 12F.9.5 | Describe the similarities and differences between nervous and hormonal control systems in mammals. | 12A.9.6 | Describe, compare and contrast the structure and function of sensory, motor and intermediate neurones and know where they are found. |
| 9.10.3 | Know the general structure and functions of the human nervous system, the structure and function of types of nerve cells, and the pathways taken by a nerve impulse in response to a stimulus. |
| 12A.9.7 | Explain the function and importance of a reflex arc and differentiate between a simple reflex and a conditioned reflex. |
| 12A.9.8 | Explain: the nature of a nerve impulse and the way it is transmitted; resting potential; membrane depolarisation and action potential; refractory period; the passage of sodium and potassium ions. |
| 9.10.4 | Know the functioning and importance of the reflex arc. |
| 9.10.7 | Know the similarities and differences between hormone and nervous control systems. |
| 12A.9.9 | Explain the operation of sensory receptors as energy transducers. |
| 12A.9.10 | Describe the roles of synapses in the nervous system in determining the direction of nerve impulse transmission and in allowing interconnections of nerve pathways. |